D3D System Prerequisites, Installation, and Configuration

System Prerequisites

1.1 Hardware prerequisites

    1.1.1 Platform
        WFO-Advanced Display 3-D (D3D) currently requires an AWIPS HP workstation

    1.1.2 Memory
        150 MB or less are required for running D3D.

        NOTE: The Vis5D '-mbs n' command line option limits the memory used by vis5d to 'n' megabytes. When the limit is exceeded, the least-recently-viewed graphics are de-allocated. Currently the Vis5D command line argument -mbs is set to 150. To increase/decrease this value edit ~d3ddemo/v5d/lib/tcl/tclD3D/fui_ipc/**fui_ipc.tcl**

    1.1.3 Disk space
        25 MB (excluding D2D and datasets)

1.2 Software prerequisites

    1.2.1 Operating System
        HP-UX 10.20

    1.2.2 Tcl/Tk
        Tool Command Language/Tool Kit version 8.0, the shareware software that runs **wish**.

    1.2.3 Graphics Software

        • PowerShade - a component of HP Starbase

        To have 3D capabilities with complete lighting and shading functionality, the PowerShade product (B2156C) must have been installed. (The CRX24Z/CRX48Z display devices include PowerShade). The 3D objects appear as wireframe and/or with flat lighting on workstations without the PowerShade product.

        • HP PEX library

        HP PEX includes texture mapping, Z-buffer operations, support for accelerated graphics devices and more.

        The FSL standard installation location of the PEX library is /opt/graphics/PEX5. To verify the proper installation of PEX and PowerShade, run /opt/graphics/PEX5/demos/PEX-Verify.scr. When successful, a 3D alphabetic cube appears rotating in a small window. If PowerShade is successfully loaded, the sides of the cube have a metallic appearance.

1.2.4 WFO-Advanced D2D

D3D and D2D share both a common database and configuration files. Currently, D3D is not independent of D2D and relies on D2D for data, data retrieval software (in order to generate derived variables), map backgrounds and localization information.

D3D Installation and Configuration

2.1 Installation

The installation of D3D requires either
    1) unpacking a compressed tar file, or
    2) copying the source code from a CD ROM
into the desired location on disk. At FSL, a directory is created at the user level, for example $D3D_HOME which is set to /home/$MACHINE/d3ddemo.

2.2 Directory Structure and Organization

$D3D_HOME	D3D home directory (e.g. /home/$MACHINE/d3d)
$D3D_HOME/v5d	Source code, binary files, and configuration files for D3D
$D3D_HOME/docs	Help files and recent web-based papers and presentations
$D3D_HOME/docs/users_guide	Web-based on-line User Guide
$D3D_HOME/user_files	By default bundles and procedure (.sav) files are written to this directory.
$D3D_HOME/logs	If this directory exists and is writable, log files are automatically created here. Log files record messages sent to Vis5D from the D3D user interface allowing one to track use of the application.

NOTE: $D3D_HOME/logs and $D3D_HOME/user_files are initially, empty of contents.

2.3 Environment Variables

Environment variables are set in $D3D_HOME/v5d/**vis5env**. The values shown below are for an FSL localization. These values need to be changed to reflect the WFO-Advanced D2D localization and D3D directory structure being used.

2.3.1 WFO-Advanced Variables

FXA_DATA=/data/fxa
FXA_HOME=/awips/fxa
FXA_LOCAL_SITE=FSL
FXA_INGEST_SITE=FSL
FXA_NATL_CONFIG_DATA=${FXA_HOME}/data/localization
FXA_LOCALIZATION_ROOT=${FXA_HOME}/data/localizationDataSets
FXA_LOCALIZATION_SCRIPTS=${FXA_HOME}/data/localization/scripts

2.3.2 D3D Variables

D3D_HOME=/home/$MACHINE/d3d/v5d
D3D_IMG=$D3D_HOME/bin/image
D3D_TCL=$D3D_HOME/lib/tcl/tclD3D
D3D_LOGS=$D3D_HOME/../logs
PROC_PATH=$D3D_HOME/../user_files
VIS5D_PATH=$D3D_HOME/data

2.4 Localization and configuration files

NOTE: The organization and location of configuration files are subject to change in the next release of D3D.

2.4.1 Model scale configuration file (edit to change model scale categories and the list of available models)
$D3D_HOME/v5d/lib/tcl/tclD3D/data-config.tcl.cwb

2.4.2 Vertical scale configuration file (edit to set the default vertical exaggeration per model)
$D3D_HOME/v5d/lib/tcl/tclD3D/exaggeration.tcl.cwb

2.4.3 Model configuration files (these files determine the list of models available for each scale)
$D3D_HOME/v5d/lib/tcl/tclD3D/panel/doc/browserSourceMenu_0.txt.cwb
$D3D_HOME/v5d/lib/tcl/tclD3D/panel/doc/browserSourceMenu_1.txt.cwb
$D3D_HOME/v5d/lib/tcl/tclD3D/panel/doc/browserSourceMenu_2.txt.cwb
$D3D_HOME/v5d/lib/tcl/tclD3D/panel/doc/browserSourceMenu_3.txt.cwb

2.4.4 Parameter configuration file (edit to enable/disable model parameters)
$D3D_HOME/v5d/lib/tcl/tclD3D/panel/doc/model_parms.txt.cwb

2.5 Basics

2.5.1 Starting D3D

To start D3D, execute **app-d3d** (for CWB its called app-cwb) located in $D3D_HOME/v5d is a borne shell (sh) script that first sources **vis5env** (vis5env-cwb), sets other environment variables then starts the D3D application.

NOTE: Several variables in vis5env need to be confirmed or changed to reflect the current WFO-Advanced D2D localization (see section 2.3).

2.5.2 Stopping D3D

To stop D3D, choose **Exit** under the File option on the Menu Bar. A dialog box appears in the middle of the display screen, asking you to confirm that you really want to exit.

If D3D crashes, for any reason, there is a script called $D3D_HOME/v5d/bin/**d3dkill** designed to clean up old files and kill legacy D3D processes. (D3D has been known to fail when reading data files that are not in the correct NetCDF format, possibly null, or corrupted).

DeskTop Configuration

3.1 Modifying the Common Desktop Environment (CDE) to add D3D to the DeskTop root menu and add a DeskTop monitor.

If the log on account is awipsusr, cd to ~awipsusr/.dt and

1) Edit dtwmrc file by adding:

"Start D3D" f.exec "~d3ddemo/v5d/app-d3d :0.0"

For a two console systems, add:

"Start D3D on left display"	f.exec "~d3ddemo/v5d/app-d3d :0.0"
"Start D3D on right display"	f.exec "~d3ddemo/v5d/app-d3d :1.0"

-or-

"Start D3D (:0.0)"	f.exec "~d3ddemo/v5d/app-d3d :0.0"
"Start D3D (:1.0)"	f.exec "~d3ddemo/v5d/app-d3d :1.0"

2) Copy icons:
  d3dOnly.pm
  blank.pm

  to directory:
  .dt/icons

3) Add the following section to the file:

  .dt/types/wfopanel.fp

  #----- begin

```
  CONTROL MonitorVis5D
  {
    CONTAINER_NAME          WFOTop
    CONTAINER_TYPE          BOX
    POSITION_HINTS          1
    TYPE                    ICON
    MONITOR_TYPE            file
    FILE_NAME               /tmp/vis5d_monitor
    ICON                    blank
    ALTERNATE_ICON          d3dOnly
  }
```

  #----- end

4) To add D3D to the DeskTop workspace edit

  .dt/sessions/home/dt.resources:Dtwm*0*ws2*title: D3D